REMARKS

Claims 1-26 are pending. Claims 1-2, 4-9, 11-12, 14-15, 17, 20, 22, and 24-26 are rejected under 35 U.S.C. § 112, second paragraph. Claims 1-2, 5-11, 13-16, 18-21 and 23 are rejected under 35 U.S.C. § 103(a). Claims 3-4 are objected to as depending from a rejected base claim.

Claims 1, 11, 15, 20, and 24-26 are rejected under 35 U.S.C. § 112, second paragraph, for reciting "plurality of nearest future transmissions." Claim 1, for example, recites "said first frequency specified by the frequency hopping pattern for one of a *plurality of nearest future transmissions*." (emphasis added). Referring to Figure 1, the Bluetooth modified hopping pattern shows slave S transmitting on frequency f_3 as specified by the master M frequency hopping pattern f_1, f_3, f_5, f_7. For the embodiment of Figure 1, therefore, said one of a plurality of nearest future transmissions from the second device M on frequency f_3 is immediately after the slave S transmission on frequency f_3. The embodiment of Figure 2 shows a Bluetooth modified hopping pattern with slave S_1 transmitting on frequency f_7 as specified by the master M frequency hopping pattern f_1, f_3, f_5, f_7, f_9, f_{11}. For the embodiment of Figure 2, therefore, said one of a plurality of nearest future transmissions from the second device M on frequency f_7 is three hops after the slave S_1 transmission on frequency f_7 due to intervening transmissions to slaves S_2 and S_3 on frequencies f_3 and f_5, respectively. In other embodiments, the meaningful measurement opportunity benefit can be realized so long as the slave transmits to the master on a frequency that is scheduled for one of the master's next several transmissions to the slave, for example one of the master's next ten transmissions to the slave. (page 10, lines 2-5). Limitations of independent claims 15 and 20 are similar to claim 1. Thus, claims 1, 11, 15, 20, and 24-26 are definite and, therefore, patentable under 35 U.S.C. § 112, second paragraph.

Claims 1, 2, 4-9, 12, 14-15, 20, and 24-26 are rejected under 35 U.S.C. § 112, second paragraph, for reciting "said one transmission." This limitation is also present in claims 16-18 and 21. Claim 1, for example, recites "said first frequency specified by the frequency hopping pattern for *one of a plurality of nearest future transmissions*." (emphasis added). The antecedent for "said one transmission," therefore, is "one of a plurality of nearest future transmissions." Independent

claims 15 and 20 include similar language. Thus, applicant respectfully submits that claims 1, 2, 4-9, 12, 14-18, 20-21, and 24-26 are patentable under 35 U.S.C. § 112, second paragraph.

Claims 12, 17, and 22 are rejected under 35 U.S.C. § 112, second paragraph, for reciting "immediately timewise adjacent." Claims 12, 17, and 22 depend from independent claims 1, 15, and 20, respectively. Claim 1, for example, recites "said first frequency specified by the frequency hopping pattern for one of a *plurality of nearest future transmissions*." (emphasis added). Referring to Figure 1, the Bluetooth modified hopping pattern shows slave S transmitting on frequency f_3 as specified by the master M frequency hopping pattern f_1, f_3, f_5, f_7. For the embodiment of Figure 1, therefore, said one of a plurality of nearest future transmissions from the second device M on frequency f_3 is "immediately timewise adjacent" the slave S transmission on frequency f_3. The embodiment of Figure 2 shows a Bluetooth modified hopping pattern with slave S_1 transmitting on frequency f_7 as specified by the master M frequency hopping pattern f_1, f_3, f_5, f_7, f_9, f_{11}. For the embodiment of Figure 2, therefore, said one of a plurality of nearest future transmissions from the second device M on frequency f_7 is three hops after the slave S_1 transmission on frequency f_7 due to intervening transmissions to slaves S_2 and S_3 on frequencies f_3 and f_5, respectively. Thus, the master M transmission on frequency f_7 is not "immediately timewise adjacent" the slave S_1 transmission on frequency f_7. Applicant respectfully submits that claims 12, 17, and 22, therefore, are patentable under 35 U.S.C. § 112, second paragraph.

Claims 1, 6-11, 13, 15-16, 18-21, and 23 are rejected) under 35 U.S.C. § 103(a) as being unpatentable over Rodgers (U.S. Pat. No. 6,400,751). Rodgers discloses a frequency hopping radio that selects a single frequency for transmission when a number of frequencies without significant noise or interference is below a certain percent. (col. 3, lines 6-12). A flow chart of this selection procedure is shown at Figure 5. (col. 4, line 64 through col. 5, line 3). Once a transmitting radio has selected a single frequency mode for transmission, a single frequency is selected according to the flow chart of Figure 4. (col. 5, lines 28-30). This single frequency selection is unrelated to any previous transmission directed to the transmitting radio. It is simply a frequency with the least interference of all the monitored frequencies. For example, Figure 4 discloses that each frequency in the hop set is monitored for 4 milliseconds 170 to estimate the interference energy level. Rodgers

does not teach or suggest that there is any communication during this monitoring period or even that the interference necessarily originates from another radio set. The interference may be from a nearby electric motor, power lines, or other interference sources. The energy level of interference is then compared to a threshold 180. If the energy level is less than the threshold, the interference energy level is again estimated for 10 milliseconds 190 and compared to a threshold 200. If the energy level of this frequency is again below the threshold, it is selected 210 for single frequency transmission.

By way of contrast, claim 1 recites "A method of controlling wireless communications between a first frequency hopping wireless communication device and a second frequency hopping wireless communication device, comprising: *the first device sending to the second device a first transmission* on a first frequency specified by *a frequency hopping pattern associated with transmissions by the second device*, said first frequency specified by the frequency hopping pattern for one of a plurality of nearest future transmissions from the second device to the first device; *the second device receiving the first transmission and providing communication quality measurements respectively associated with receipt of the first transmission*; and *based on the communication quality measurements, the second device sending said one transmission to the first device on the first frequency*." (emphasis added).

Claim 1 specifically requires that the first device sends the first transmission to the second device and that the second device receives the first transmission. Rodgers fails to teach or suggest such an arrangement. Rodgers teaches that a transmitting radio, with a pending request to transmit, estimate an interference energy level. If this transmitting radio is taken as the second device (claim 1), Rodgers fails to teach or suggest that this interference is transmitted by a first device to the second device. The interference may be from any combination of sources unrelated to radio transmission. Moreover, Rodgers fails to teach or suggest that the transmitting radio decodes the interference in order to measure an energy level. Thus, there is no received communication as required by claim 1. Claim 1 also requires communication quality measurements associated with receipt of the first transmission. Such communication quality measurements would not be possible from the embodiment of Figure 4 unless an undisclosed first device produced the interference

continuously for at least 14 milliseconds as specified by blocks 170 and 190 (Figure 4). Finally, claim 1 requires "a frequency hopping pattern associated with transmissions by the second device." The second device of claim 1, therefore, must transmit according to a frequency hopping pattern. If a single frequency is selected for transmission (block 210, Figure 4), then the transmitting radio is no longer operating in a frequency hopping mode as required by claim 1. (col. 5, lines 39-40). Thus, applicant respectfully submits that claim 1 and depending claims 2-14 are patentable under 35 U.S.C. § 103(a) over Rodgers.

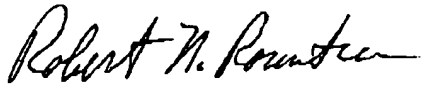
Furthermore, the disclosure of Rodgers is directed to a completely different purpose than the present invention. Rodgers teaches transmitting in single frequency mode rather than frequency hopping mode when estimated interference energy levels exceed a threshold. The second device of the present invention, however, remains in frequency hopping mode and uses transmissions from a first device on a first frequency to measure communication quality. Based on this measured communication quality from the first device, the second device sends a subsequent transmission to the first device on the first frequency. This measured communication quality from the first device advantageously provides current information about communication quality between the second device and the first device over the actual communication path. This current information may be used to calculate weighting coefficients for multiple antennas, select channel coding rates or data packet lengths, or adjust transmission power level. (page 15, lines 14-18). Such advantages of this measurement technique are neither taught nor suggested by Rodgers. Thus, one of ordinary skill in the art would not think to modify the teaching of Rodgers to achieve advantages of the present invention apart from improper hindsight in view of the instant specification. For all the foregoing reasons, therefore, applicant respectfully submits that claim 1 and depending claims 2-14 are patentable under 35 U.S.C. § 103(a) over Rodgers.

Claims 15-19 recite "A frequency hopping wireless communication apparatus, comprising: at least one antenna for transmitting and receiving communications via a wireless communication link; *a wireless communication interface coupled to said at least one antenna for receiving from a further frequency hopping wireless communication apparatus via said at least one antenna a first transmission* on a first frequency specified by *a frequency hopping pattern*

associated with transmissions by said wireless communication interface, said first frequency specified by the frequency hopping pattern for one of a plurality of nearest future transmissions to the further apparatus; and *said wireless communication interface including a measurement portion for providing communication quality measurements respectively associated with receipt of said first transmission by said at least one antenna, said wireless communication interface operable in response to receipt of said first transmission and based on said communication quality measurements for sending said one transmission to the further apparatus via said at least one antenna on said first frequency.*" Claims 20-26 recite "A frequency hopping wireless communication apparatus, comprising: an antenna for transmitting and receiving communications via a wireless communication link; *a wireless communication interface coupled to said antenna for sending via said antenna to a further frequency hopping wireless communication apparatus a first transmission* on a first frequency specified by *a frequency hopping pattern associated with transmissions by the further apparatus*, said first frequency specified by the frequency hopping pattern for one of a plurality of nearest future transmissions from the further apparatus to said wireless communication interface; and *said wireless communication interface operable for receiving said one transmission from the further apparatus via said antenna on said first frequency, said nearest future transmission sent by the further apparatus based on a plurality of communication quality measurements made by the further apparatus and respectively associated with receipt of said first transmission by the further apparatus*." (emphasis added). If the wireless communications interface and the further frequency hopping wireless communications apparatus of claims 15-19 are compared to the second and first devices of claim 1, respectively, then Rodgers fails to teach or suggest the comparable limitations of claims 15-19 as previously discussed. Likewise, if the wireless communications interface and the further frequency hopping wireless communications apparatus of claims 20-26 are compared to the first and second devices of claim 1, respectively, then Rodgers fails to teach or suggest the comparable limitations of claims 20-26 as previously discussed. Thus, applicant respectfully submits that claims 15-26 are also patentable under 35 U.S.C. § 103(a) over Rodgers.

In view of the foregoing, applicants respectfully request reconsideration and allowance of claims 1-26. If the Examiner finds any issue that is unresolved, please call applicant's attorney by dialing the telephone number printed below.

Respectfully submitted,



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